Research article

Does quality stimulate customer satisfaction where perceived value mediates and the usage of social media moderates?

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ABSTRACT

Customer is considered as the king in the world of business. The issue of customer satisfaction in electronics home appliances has received greater attention from academics and practitioners. In other words, customer satisfaction is a vital consideration in marketing. With the development of technology, new and innovative electronic home appliances are available in the market. Customers purchase and use the costly electronic home appliances where the satisfaction issue is an important concern. In Bangladesh, working families find the electronic home appliance very necessary. Companies offer state-of- the-art appliances for customers' household works. Therefore, the study intends to investigate the effect of product quality (PQ), quality of service (SQ) and perceived value on customer satisfaction (CS). In addition, this study also seeks this relationship shaped by customer's perceived value (CPV) as a key mechanism and interacted by social media usage. A total of 300 households were selected on a judgmental basis from Dhaka city in Bangladesh using a structured questionnaire. Collected data were CB-SEM (AMOS-v24) and SPSS. The findings showed PQ and SQ have positive effects on CS; SQ affects, but PQ does not affect CPV. CPV has a mixing mediating effect on SQ and CS relationship and PQ and CS relationship. Importantly, the positive impact of PQ, SQ and CPV is greater on customers who exhibit higher social media use. The conceptual framework was buttressed by EDT theory. The study contributed to contextual and theoretical knowledge in regards to home appliances. The practicing managers can collect an insight of customer satisfaction for their business.

1. Introduction

Marshall, the famous and pioneer retailer, introduced the motto "Right or wrong, the customer is always right". This motto indicates customer satisfaction. On the other hand, the concept *caveat emptor* (let the buyer beware) ignored customer attitude and their importance earlier stage in marketing (Jackson, 2017; McBain, 1944). Gradually some scholars identify the importance of customers. Fazal and Kanwal (2017) mentioned that customers are the nucleus of every successful company. Customer satisfaction is an aspect of psychological attitude or mood of customers, and a firm necessarily focuses this emotional state (Feng et al., 2019; O'Dwyer and Gilmore, 2018). Due to technological development, human life has become faster (McArthur, 2016), social needs and wants change, and the nature of their satisfaction alters. Similarly, marketing environment has changed (Kotler, 2017) and

businesses are facing a tough challenge to ensure customer value (Shamsudin et al., 2018b) and their satisfaction (Hassan and Shamsudin, 2019).

Electronic appliances, especially home appliances like air conditioner, coffee maker, crockeries, dishwasher, fan, fridge, geyser, iron, kitchen accessories, lighting bulbs, micro oven, oven, pressure cooker, rice cooker, sewing machine, television, washing machine, water heater, etc. have made human lives easier (McArthur, 2016). These home appliances or consumer durables last for a long period, and additional service or replacement are required (Lobo, 2016). One report from Statista (2020a) shows that total revenue for electronics home appliances in 2020 globally would be US$121.16 billion with user penetration of 13.60%. This report also forecasted that with the growth rate of 6.10%, the projected market volume will be US$153.51 billion in 2024 and new user penetration of 23.90%. Every user will spend an average amount to

US$119.99. The Chinese users will spend the most amount compared to the other global users. Another report has forecasted that global home appliances will increase at 8.00% compound annual growth rate in 2025 (ReportLinker, 2020). Similarly, MarketWatch (2020) reported on August 13, 2020, that global home appliance market would grow to US$ 837.00 billion in 2024 at a compound annual growth rate of 5.30 from US$ 615.00 billion in 2020. The top major global brand of home appliances are Haier, Whirlpool, Electrolux, GREE Electronics, BSH Bosch & Siemens.

Similarly, the Bangladeshi household appliance market has been expanding rapidly to meet the increasing demand. In Bangladesh, which is the 8th lar-gest population in the world, the annual expenditure is above USD 130.00 billion with a growth rate of 6% per annum. According to a study, BGD (2015) assumed that the middle and affluent class would be around 34 million by 2025 who would use those appliances for a long time (Begum and Zami, 2018). The national poverty line dropped from 14.8% in 2016 to 9.2% in 2019 (ADB, 2020), which indicates an increase in consumers' purchasing capacity. Home electronic appliances are mostly purchased and used by this large group of people. According to a report of DataBD (2020), electronic market size is of US$ 1.37 billion in Bangladesh (particularly, television: USD 414.22 million, refrigerators: USD 549.11 million, air conditioner: USD 164.57 million and other appliances: USD 251.41 million). Among various electronic categories, refrigerator occupies 40%, and television covers 30% market size. In the television product category, local brands such as Rangs, Walton, Vision, Singer, MyOne are occupying the market. In contrast, international brands such as Sony, Samsung, Panasonic, Toshiba, Phillips, LG, Sanyo are meeting the customers' needs. Similarly, Walton, MyOne, Minister brands are providing refrigerators goods as a local brand, wherein Samsung, Whirlpool, Kelvinator, LG, Hitachi, Hier, etc. are competing with local brands. Butterfly and Walton (local brands) and General, LG, Daikin, GREE, Carrier, Whirlpool, etc. (foreign) meet AC demand. Besides, other home appliances are getting available at customers' doorsteps by both local brands like Walton, Electra, Singer, Eco+ and international brands (Miyako, Sebec, Panasonic, Sharp, SteamFast, etc.) (DataBD, 2020).

In this changing twenty-first-century business environment, the need for research on product quality, customer attitude, innovation has poised an inevitable strategy of a business organization to meet and satisfy the multiple role holding consumers (Lau et al., 2019; Moghavvemi et al., 2018; Quang et al., 2018). Besides, customers' interaction in technology and social media have made this challenge more challenging (Hamzah and Shamsudin, 2020). This competition enables companies to offer better products at a reasonable price (Balakrishnan et al., 2013).

A report indicates that the number of social media is increasing with its users in Bangladesh. The recent data shows around 40.70 million users as of March 2020. Among them, a total of 37.91 million (93.28%) are using Facebook; messenger users are 11.28 million (27.52%), and 1.35 (3.31%) million are YouTube users. Similarly, Pinterest users (0.51 mil., 1.24%), Twitter (0.10 mil., 0.98%), Instagram (2.28mil., 5.6%), Reddit (0.05 mil., 0.11%), Tumblr (0.04 mil.,0.1%), LinkedIn (a professional social media) (3.33 mil., 8.18%), VKontakte (0.04 mil.,0.09%) and others (0.98 mil., 0.24%) are using social media (NapoleonCat, 2020). Thus, social media is a large platform for interacting with each other. According to a newspaper report, 94% of total users have access to social media through mobile phone devices (Report, 2018). This report also stated that female users are around 24% of total users. Social media like Facebook, WhatsApp, Instagram, Pinterest affect customer references, usage experience, and recommendation on customer behaviour. In views of Schwartz-Chassidim et al. (2020), people use Facebook as a social media and social network for sharing messages, comments and recommendation.

Consumers-interchangeably used as customers (Shamsudin et al., 2018b) as a human being are accustomed to what others do (Feng et al., 2019; Gligor et al., 2019; Hamzah et al., 2016). A loyal customer influences others such as family members, friends, relatives, and peer groups to purchase same or similar products from the same brand (Belwal and Amireh, 2018; Ghazzawi and Alharbi, 2019; Herhausen et al., 2019) and contribute to higher sales and business profit (Razak and Shamsudin, 2019; Uddin, 2013). According to Morra et al. (2018), social media generates an impact on their reviews about the brand, on their satisfaction level, and their perception. Before purchasing electronics items, a customer considers the reviews by others, word of mouth, family and friend's recommendations and suggestions. By the grace of social media, customer can easily find valuable opinion, advice and reviews. In contrast, social media, in the absence of systematic effort, leads the spread of misinformation (Webb et al., 2016) and can cause chaos in society (Lukasik et al., 2019). On average, a person shares a good experience with nine others. In comparison, s/he shares a poor experience with 16 people (American Express Survey); unhappy consumers share their poor experience with 11 people (The Sydney Entrepreneur Centre), and a dissatisfied customer tells 9–15 people, and 13% customers share more than 20 persons (While House Office of Consumers Affairs). In social media, this trend increases. In many events related shopping, women are the decision-makers or purchasers. Due to their interaction in social media regarding purchasing these electronics home appliances, they count others' observation, experiences and recommendation.

The home electronics market has been digitalized, and ever-increasing and customer interaction in social media has been enhanced. Begum and Zami (2018) stated that some risks prevail in logistic support, price and after-sale services. A report shows that in some cases, customers complaints are not entertained as promised. Product quality of household items is found lower, and after-sale services (repairing, replacement, or servicing) sometimes are dilly-dallying. As a result, customers are found unhappy and dissatisfied with appliances and companies. Beside, HofstedeInsights (2020) illustrates that Bangladeshi society upholds rigid codes of belief and behaviour (Uncertainty Avoidance Index-UAI) and in long term orientation index (LTOI). In this emerging market in Bangladesh, therefore, customer satisfaction needs to be improved, and customer complaints need to be quickly entertained. Academicians or market researchers did not emphasize this crucial issue very much. To best of their knowledge, the authors of this research could not find much relevant literature. According to Lobo (2016), very few literature is available on customer satisfaction on physical product like electronic home appliances. Thus, this study focuses on this important issue to fill up the literature gap which will also implicate in the present market growth. Consequently, the research gap of this study has been conceptualized in the following questions: i) whether the perceived quality of electronics home appliances satisfy the customers and users in Bangladesh where high demand for these home appliances exist; ii) whether customer perceived value (cost-benefit comparison) strengthens the perceived quality and satisfaction relationship; and iii) whether the role of social media usage (the information used, shared, or commented) fluctuates the perceived quality and satisfaction relationship because customers are using social media rampantly and are being influenced by the information therein while buying and using electronics home appliances.

The authors examined the relationship of customer satisfaction with its antecedents such as product quality, quality of installation service and after-sale service, their value about the brand and product, and how social media affects the buying decisions based on the recommendation of family members, friends and other customers' reviews and comments therein. Gerdt et al. (2019); Hirata (2019); Kim et al. (2019) illustrated the significance of customer satisfaction as a vital role in a business organization. A quality product, better customer service, and image of the company satisfy the customer (Shamsudin et al., 2019a). Previous studies demonstrate that customer satisfaction influences a business firm, that is, a happy and delighted customer will repurchase and repeated purchase with a bulk amount (Gerdt et al., 2019). The satisfied customer even is ready to pay more (Shamsudin et al., 2019b) and is ready to advertise to have more customers by suggesting company's products (Shamsudin et al., 2015b). A satisfied customer invites their family members, friends

and peer groups. But a dissatisfied customer shares their dissatisfaction or discomfort in social media (Hassan and Shamsudin, 2019; Shamsudin et al., 2015a, 2015b). Zhang et al. (2019) warned that this negative message in social media might cause a risk for the organization of losing prospective customers.

This study underpinned the expectancy disconfirmation theory (EDT) developed by Oliver (1980) to investigate customer satisfaction. This theory explains that customers compare the actual experience of using products and services with expectations about those products. If the actual experience is below the expectations, they will be dissatisfied. Instead, if the actual experience supersedes the expectation, customers will be delighted (Skogland and Siguaw, 2004). This net difference is either satisfaction, dissatisfaction or neutral (Yi, 1990). Customer satisfaction depends on this comparison outcome.

Consequently, this current study tries to cover the gaps in the theories, literature, as well as in the practical and industrial issues by initiating-how customer satisfaction interacts the effect of social media usage in the context of electronics household items (Lobo, 2016) in Bangladesh. Understanding the customers' perception and its determinants will assist brand managers, marketing managers, retail showroom businesses in creating and upholding an appropriate competitive strategy.

The current study tried to maintain the flow of the review of literature, development of research hypotheses and conceptual framework, research methodology, data analysis, results, and discussions; finally, conclusion, contribution, implications, limitations and future directions for the study in the following sections respectively.

2. Literature

According to Tseng (2019), customer satisfaction is very vital to the success of a company; it is also crucial to identify those influential factors. Research on customer satisfaction has not ended yet, and researchers and scholars are making a relentless effort to examine the effect of antecedents and consequence of customer satisfaction. Researchers still are suggesting to conduct more research on this area (Evanschitzky et al., 2012).

2.1. Customer satisfaction (CS)

Satisfaction also refers to the "perceived discrepancy between prior expectation and perceived performance after consumption; performance differs from expectation, dissatisfaction occurs" (Oliver, 1980). Kondou (1999) defines "customer satisfaction as a person's subjective evaluation of his or her situation results in a positive emotional response." Consumer satisfaction is a "condition in which consumer expectations would be met by a product" (Kotler and Armstrong, 1999). Customer satisfaction is a psychological response of customers to their positive evaluative consumption outcome (real experience) about their expectations (perception) (Shukla, 2004). According to Chitty et al. (2007), customer satisfaction is a psychological assessment and a constructive comparison between the sacrifice they make by paying (cost) for availing services and products and benefits they receive from the moment of purchase to product life cycle or end of consuming. If real experience (interest) is higher than the perceived expectation (cost/sacrifice), customers become satisfied. Otherwise, they are dissatisfied (Oliver, 1980).

Satisfaction is a trade-off of pre and post-consumption or usage of a product (Shamsudin et al., 2018a). Customer satisfaction is thus essential to meeting the various needs of customers and firms (Yi and Nataraajan, 2018). The pursuit of customer satisfaction has become a strategic imperative for most firms that need to sustain and remain competitive (Yi and Nataraajan, 2018).

Realizing this importance of customer satisfaction, many scholars attempted to conceptualise and formulate this constructs like- Fornell and Wernerfelt (1988); Anderson and Sullivan (1993); Halstead et al. (1994); Fornell et al. (1996); Oliver (1997); Kotler (1997); Boshoff

(1999); Ruyter and Bloemer (1999); Mittal and Kamakura (2001) and Szymanski and Henard (2001). Over the period, the customer satisfaction concept has received attention. Many researchers, academics, and scholars have addressed customer satisfaction to cope with the characteristics of customers in present time. Among them, Ulaga and Eggert (2006); Fornell et al. (2010); Kaura et al. (2015); Ayo et al. (2016); Cheung and To (2016); Kant and Jaiswal (2017); Mannan et al. (2017); Marinkovic and Kalinic (2017); Oh and Kim (2017); Sampaio et al. (2017); Tandon et al. (2017); Keshavarz and Jamshidi (2018); Moorthy et al. (2018); Thielemann et al. (2018) and Tseng (2019) are remarkable in recent years.

2.2. Product quality (PQ)

The product provides consumers with functional benefits (Hankinson and Cowking, 1996) by which a customer fill their needs. The features and characteristics of a product or service reflect product quality. Therefore, product quality means "fitness for use" or 'conformance to requirement" (Russell and Taylor, 2006). Besides, the International Organization for Standardization (ISO) defines product quality "as the ability to satisfy the customer and market" (Lakhal and Pasin, 2008). However, the term quality has eight dimensions: performance, features, reliability, conformance, durability, serviceability, aesthetics and perceived quality (Garvin, 1984). Some scholars have defined product quality in two ways-perceived and objective, and in this study, perceived product quality was adopted.

Product quality concept was used in different research fields. Previously, Aaker (1991); (1996); Cronin and Taylor (1992); Parasuraman et al. (1996); Rao and Monroe (1989); Sweeney et al. (1999); Taylor and Baker (1994) and Zeithaml (1988) used this construct in their works. Later on, Brunsø et al. (2005) and Russell and Taylor (2006) also tested product quality for customer satisfaction. Over the time, the quality of a physical product was prioritized in the research of Calantone and Knight (2000); Cho and Pucik (2005); Forker et al. (1996); Martínez-Costa et al. (2009); Molina-Castillo et al. (2013); Morgan and Vorhies (2001) and Prajogo and Sohal (2004). Very recently, Kotler and Armstrong (2018); Lin et al. (2018) and Gök et al. (2019) also studied product quality.

2.3. Quality of service (SQ)

This study used quality of service to mean the service that a company provides during the purchase and installation of a product (electronic items) and after-sale service (warrantee, replacement, cashback, etc.). With an after-sale service, a company can maintain a long term customer relationship (Shaharudin et al., 2010). As electronic items need some assistance to be associated with for functioning and maintenance (Bei and Chiao, 2006), this study denotes the quality of service as that service for operation and maintaining of the physical products such as installation, repairing and after-sale service. Hu et al. (2009) emphasised on quality of service from customer views and remarked quality of service as an uncompromised core factor of service promise. Like the service industry, physical product-based companies have to assure the quality of service. The "after-sales service" of tangible goods refers to "operative activities" (Gaiardelli et al., 2007). *After-sale service* is a term that is mostly and widely used while an electronic item is on sale. To customers, after-sale service means some services that are to be received after purchasing products (Vitasek, 2005). These services refer to "field service" when those services are in customer's sites or customer houses (Simmons, 2001). "After-sales support" is also known as "technical support" (Agnihothri et al., 2002) or even just "services", are discussed in the previous studies (Goffin and New, 2001). Lele and Karmarkar (1983) mentioned that "after-sales services" are termed as "product support activities" which means those supports activities are related to 'product-centric transaction'. In literature, these support activities are "customer support" elements that indicate all activities *assuring* this product is available to consumers "over its useful lifespan for trouble-free

use" (Loomba, 1998). Furthermore, the term "after-sales services" is brought in the perspective of two considerations in the literature.

Rigopoulou et al. (2008) illustrated these services are "the transport or delivery to clients, the installation, the product-related training, the hotline and advice by the help desk, any repairing service and even the recycling process". Koyuncu et al. (2014); Shi et al. (2014); Dhar (2015); Kaura et al. (2015); Lai (2015); Zameer et al. (2015); Ayo et al. (2016); Pizam et al. (2016); Kant and Jaiswal (2017); Oh and Kim (2017) and Keshavarz and Jamshidi (2018) worked on service quality in their respective fields in very recent times.

2.4. Customer perceived value (CPV)

Zeithaml (1988) defines perceived value as "the consumer's overall assessment of the utility of a product (or service) based on perceptions of what is received and what is given". Another scholar, Bettman et al. (1998), meant customer perceived value as "value customers perceive they receive or experience by using a service". Similarly, Lovelock (2000) defined perceived value as a "trade-off between perceived benefits and perceived costs". Vandermerwe (2003) stated the practical view of perceived value as a ratio of value a customer receives consuming a product and the value s/he expects before consuming it. Perceived value is the state of fulfilment of what they expect from an electronics household product or its associated service and what they ultimately gain (Uddin, 2013).

Perceived value is considered as a vital factor in marketing and for marketers (Keshavarz and Jamshidi, 2018; Oh and Kim, 2017; Thielemann et al., 2018; Zameer et al., 2015). Some scholars find customer perceived value as a stable factor to forecast customer's buying behaviour (Anderson and Sullivan, 1993; Carroll et al., 2002; Chen and Dubinsky, 2003; van Riel and Pura, 2005). Zeleti et al. (2016); Sabiote-Ortiz et al. (2016); Joung et al. (2016) and Walls (2013) conducted their research on the perceived value. Similarly, other researchers like Wu et al. (2011); Howat and Assaker (2013); Kim et al. (2013); Tung (2013) (Chen and Lin, 2015); Hanna et al. (2011); Ramseook-Munhurrun et al. (2015); Moorthy et al. (2018); Keshavarz and Jamshidi (2018) and Oh and Kim (2017); Thielemann et al. (2018); Zameer et al. (2015) used perceived value in their studies.

2.5. Social media (SM) and its usage

With the support of social media, customers are well-connected with the whole world with a finger-tap (Hamzah and Shamsudin, 2020). Many scholars define social media from their point of view and application. Generally, social media refers to a website and applications by which users can create, view, share and interact content in virtual social media. Kietzmann et al. (2011) depicted social media as "interactive computer-mediated technologies that facilitate creation and sharing of information, ideas, career interests and other forms of expression via virtual communities and networks". In view of Mangold and Faulds (2009), there is a significant transformation in media, especially in traditional networking in the last ten years. Supporting them, Coulter et al. (2012) noted that conventional networking has been replaced by a system facilitating modern technology. Leung et al. (2019) brought the exact utility of social media. They stated that it is a track of information super-highway, and users can share any information-in text, voice, image, video and other people can read and get information from it at their convenient time. Rao (2019) states that social media in the form of online websites that allow individuals to communicate and establish social networks such as Facebook and web-based videos like those viewed on YouTube.

Mirmehdi et al. (2017) pointed out the prominence of social media in the social networking system and remarked how social media influence in the daily decision. In view of Khan and Khan (2012), social media helps get various news and information about products, service; customers read this news, provide reviews, and feedback regarding purchased products . Regarding the role of social media, Sashi (2012) opines that social media

inspires the company to serve its customers need in a better way . According to Philip et al. (2016), the role of social network as well as media has become increasingly significant . In their opinion, reviews and recommendations on a product as well as service play an influential role in customer's decision-making process in the current digital age .

With the benefit of a user-generated-content platform, as the studies demonstrate, customers check the product reviews, feedback from customers and recommendations and make a buying decision. Facebook, Facebook Messenger, Imo, Instagram, LinkedIn, Pinterest, QQ, QZone, Skype, Tik Tok, Viber, WeChat, WhatsApp, and YouTube are popular social media networking platforms. Over 2,603 million people in the world actively use Facebook as on April 2020 (Statista, 2020b). In Bangladesh, Facebook, FB Messenger, WhatsApp, Imo, YouTube, LinkedIn, Viber, Skype are very popular and widely used. The study indicates the extent the respondents trust social media for the information, comments, reviews that are posted and shared leading to their buying decision . The more the people use social media and trust the shared information, the more it has an impact on their buying decision and vice versa. On the basis of the critical role of social media and its usage, Hu and Kettinger (2008) researchers to work with social media.

The authors of this study formulated the conceptual framework based on an extensive literature review and the objective of this study.

2.6. Hypotheses development

2.6.1. Product quality and customer satisfaction

Customers purchase and use physical products to meet their requirements. Therefore, a firm need to realize the basic idea of customer requirements (Gerdt et al., 2019; Zhang et al., 2019). Companies that offer products (attractive feature, size, colour and functional quality, serviceability, and so on) can enhance competitiveness and obtain higher customer value (Kafetzopoulos et al., 2015) (Prakash et al., 2017). Santouridis and Trivellas (2010) opine that a satisfied consumer is highly possible to stick to existing products whereas a dissatisfied consumer tends to switch to competitors' products. Uddin (2013), in his study on electronics household appliances in Bangladesh, discloses that perceived product quality positively affects satisfaction, as it is a psychological issue. He also added that customer-oriented and product-selling firms practice quality and persuade consumer satisfaction. Lin et al. (2018) and Gök et al. (2019) found that product quality is a strong antecedent of customer satisfaction. Gök et al. (2019) stated that contrast theory explains the clarification of the product evaluation process and the quality of the product that customer magnifies the gap between the product received and the product expected. If the actual performance of the product fails to meet expectations, the customer will evaluate the product less favourably (Anderson, 1973; Korgaonkar and Moschis, 1982).

Quality of products is considered as a driver of customer satisfaction (Ehsani and Ehsani, 2015) and the improved insights of this quality motivate consumer contentment (Uddin, 2013). It is a logical expectation that a customer will be satisfied with the quality of a product of a particular brand (Ayo et al., 2016). Hamzah and Shamsudin (2020) found a significant relationship between product quality and customer satisfaction. Thus, managers of electronics company can focus on developing quality and safe products that fulfil the customers' needs with satisfaction. The quality of a tangible product is strongly associated with the satisfaction of the customer (Ryu and Han (2010); Jakpar et al. (2012); Vera (2015); and Beneke et al. (2013). Based on past studies, the following has been formulated:

H1. Product quality positively and significantly affects customer satisfaction

2.6.2. Quality of service and customer satisfaction

In marketing research, service quality receives more attention considering the intangible aspect (Bei and Chiao, 2006). But tangible products require some sorts of services associated with them. The

concept of a product-service continuum indicates *service and only product* as the two extreme bipolar (Rathmell, 1966), that is, the support of services is required to some extent for most of electronics products. This support service is associated with satisfaction. For this reason, customer satisfaction is an outcome of perceived quality (Ayo et al., 2016). Kondasani and Panda (2015); Ali and Raza (2015); Hu et al. (2009) were applauded for exploring the relationship between these two constructs. The quality of service, namely after-sale service, is very vital in the case of electronics appliances. With an after-sale service, a company can maintain a long term customer relationship (Shaharudin et al., 2010). As has been argued, service for the tangible product is the intangible value offered to customers (Alteren and Tudoran (2016); O'Dwyer and Gilmore (2018); and Gligor et al. (2019). Chinomona et al. (2013) conducted a study in the retail industry in South Africa and found that service quality and customer satisfaction are positively and significantly related. Another study conducted by Kondasani and Panda (2015) in India illustrated that customer satisfaction and service quality are positively associated with each other.

Similarly, the study done by Minh et al. (2015) implies that service quality plays an essential role as a driver for higher customer satisfaction level in hotel service in Vietnam. Likewise, some authors worked on the physical product to find significance in this relationship. Like, Cronin and Taylor (1992) showed that customer services in four services industries such as banking, laundry, pest control and processed food have positive effects on customer satisfaction. And Gilbert et al. (2007) also finds this relationship significant in restaurant business where fifty percent service and fifty percent physical products (like food, water and so on). As electronics home appliances require some associated service after selling the products, after-sale service is very significant for customers and users satisfaction (Ehsani and Ehsani, 2015). In his study of electronics home appliances in Bangladesh, Uddin (2013) shows that customer service plays an influential role in determining customer satisfaction.

Past studies showed evidence that perceptions of service quality influences satisfaction different industries and in different country contexts (Beigi et al., 2016; Chen, 2008; Olorunniwo et al., 2006; Tsai et al., 2007). Thus, the authors proposed the following Hypothesis:

H2. Quality of service positively and significantly affects the relationship with customer satisfaction.

2.6.3. Customer perceived value and customer satisfaction

Customers are rapturous and want to get ensured for the value for their money (Campbell and Stanley (2015); Chicu et al. (2019); Hirata (2019); and Rita et al. (2019). Delivering superior customer value and the resulting customer *satisfaction are* crucial to the competitive edge of a firm (Murali et al., 2016). In their study, McDougall and Levesque (2000) similarly discuss the significance of customer perceived value on customer satisfaction. According to them, perceived value is a strong predictor of satisfaction. In view of Zeithaml (1988), when a customer considers his benefits much more than the expenditure, he gets satisfied. Therefore, perceived value is determinant of satisfaction (Uddin, 2013). Aligned with the intuition, Fornell et al. (1996) and Hu et al. (2009) supported that perceived value has a positive influence on customer satisfaction. However, there is a debate on whether customer perceived value has a direct or indirect effect on customers' satisfaction (Ravald and Grönroos, 1996). Fazal and Kanwal (2017) conducted a study on mobile phone users in Pakistan. They *showed* that customer perceived value has a positive and significant impact on user satisfaction of the mobile phone.

The effect of customer perceived value on satisfaction can be well-perceived by digging more in-depth in the literature. A significant number of previous studies reflect that customer value affects satisfaction (Chen, 2008; Tsai et al., 2007). Hu et al. (2009) explored the relationship between perceived value and customer satisfaction, and accordingly to their findings, superior customer value ensures higher customer satisfaction. Some studies on this relationship were conducted by Chen and

Lin (2015) who worked on social media and blowing, Kim et al. (2013) on mobile user engagement, and Unyathanakorn and Rompho (2014) on commercial banking. They found that customer perceived value has a positive impact on customer satisfaction. One of the past studies by Uddin and Akhter (2012) in Bangladesh demonstrated that customers' perceived value has a significant direct effect on the satisfaction of the customer in mobile phone services. Similarly, according to Uddin (2013), customer perceived value has a positive effect on the users of electronics products in Bangladesh. After reviewing the previous literature, the Hypothesis proposed is as follows:

H3. Customer perceived value positively and significantly affects customer satisfaction.

2.6.4. Product quality and customer perceived value

Extant literature demonstrates *that* product quality as predictors of customers' perceived value (Bolton and Drew, 1991; Chen and Hu, 2010; Lai, 2015; Zeithaml, 1988). Studies by Ryu and Jang (2008) appear to be the only empirical evidence indicating that food quality significantly affected perceived value. Hanzaee and Yazad (2010); Razak et al. (2016) mentioned the apparent effect of product quality on customer perceived value. According to a study conducted by Yang et al. (2016) on product features, like its functionality and usefulness, perceived product quality has a direct effect on customers' perceived value. Only the customer can evaluate whether or not a product or service provides value for their money and the concept of customer perceived value is perceived to be very subjective and personal (Liu and Jang, 2009; Parasuraman et al., 1985). In the case of Bangladeshi electronics home appliances market, product quality is considered a successful predictor of customer perceived value (Uddin, 2013). Additionally, Sweeney et al. (1997) regarded customers' perceived value as an outcome of perceived product quality. Based on these studies, the following Hypothesis is proposed:

H4. Product quality positively and significantly affects customers' perceived value.

2.6.5. Quality of service and customers' perceived value

Service quality serves as a predictor of customer perceived value (Bolton and Drew, 1991; Chen and Hu, 2010; Lai et al., 2009; Zeithaml, 1988). In line with earlier findings, Agarwal and Teas (2002); Butz and Goodstein (1996) found the perceived quality to have a significant influence on perceived value. In other words, the better the service quality is, the higher the customers' perceived value obtained (Howat and Assaker, 2013; Tam, 2004; Yu and Yuan, 2019). Another critical view is that perceived value also believed as a trigger of customer satisfaction. There are cogent empirical pieces of evidence to buttress the idea that quality of service is positively related to perceived value (Brady and Robertson, 1999; Ravald and Grönroos, 1996; Teas and Agarwal, 2000). Similarly Eggert and Ulaga (2002); Lai (2015); Oh (1999); Thielemann et al. (2018) highlighted that the quality of service's features (tangibles, empathy, reliability, and responsiveness) are associated with consumers' perceived value. Liu and Jang (2009); Parasuraman et al. (1985) viewed customer value as subjective and personal. Meanwhile, Sweeney et al. (1997), regarded customers' perceived value as an outcome of perceived service quality. Based on these studies, the study proposed the following Hypothesis:

H5. Quality of service positively and significantly affects customer' perceived value.

2.6.6. Mediating effect of perceived value

Value is the function of consumer evaluation; thus, it is subjective where the cost and benefit must be favourable (Itani et al., 2019; Peng et al., 2019). Therefore, the marketing literature focused the concept of customer value, putting it at the centre and as one of the core strategies when serving consumers (Fang et al., 2016; Prebensen and Xie, 2017). Nonetheless, companies are well-aware that their consumers are highly

empowered and will only purchase value-added products which are capable of providing a highly satisfying experience (Yang et al., 2016). However, the value is assessed based on the perception of the individual customers, as the same offering might be perceived to hold different value levels among customers (El-Adly, 2019). Also, Slater and Narver (2000) have explained that value is maximized when the benefits from the firm's offerings are more than the related costs (e.g., price, search, time, and psychic cost). Thus, firms should deliver more value to customers by providing them more benefits and fewer expenses; failing to do so will lead firms to lose the probability of gaining a competitive advantage. As a result, customers may search for new alternatives (Itani et al., 2019; Marbach et al., 2016). Thus, we predict that product quality and quality of service shape the customers' *perceived value; such* that these customers perceive values that invite and reinforce customers' satisfaction (Chen and Lin, 2019).

A significant indirect association exists between service quality and behavioural intention through perceived value and customer satisfaction (Cronin et al. (2000); Kim et al. (2013); Oh (1999). Again, the findings of Keshavarz and Jamshidi (2018) reflect the mediating role of perceived value in the relationship between quality and satisfaction. Similarly, Edward and Sahadev (2011) investigated the significant mediating effect of perceived value in mobile service providers in India. According to Oh and Kim (2017), a total of 21 percent of studies focused on customer perceived value in the last 15 years, e.g. from 2000- 2015. Malik (2012) had research involving the mediating role of perceived value and found customer perceived value as a partial mediator in the relationship between perceived service quality and customer satisfaction. Also, Lukito and Yustini (2019) discovered a partial mediating role of customers' perceived value. Therefore, the following hypotheses are proposed in line with the above literature:

H6. Customer perceived value mediates the relationship between PQ and customer satisfaction.

H7. Customer perceived value mediates the relationship between SQ and customer satisfaction.

2.6.7. Social media usage and its moderating role with customer satisfaction

According to Sashi (2012), social media plays a part to build a buyer-seller relationship. Lang (2010) *stated* that people spend more than one-third of their working day using social media. Only Facebook has more than 2.40 billion active users (Statista, 2020b). However, like Facebook, users are involved in spending their time on all other social media. These platforms are interactive as concerned with views, comments, and recommendations about the usage of *products,* including additional issues of life. Laroche et al. (2012) conducted a study using *CB-SEM* on social media effect in their model. They found that brand communities established on social media have a positive impact on their community (i.e., shared consciousness, shared rituals and traditions, and obligations to society), which have positive effects on value creation practices (i.e., social networking, community engagements, impressions management, and brand usage). Social media and its popularity as a unique element, have opened a new horizon for marketing practices (Hanna et al., 2011). Even social media affects "consumer behaviour through information acquisition to post-purchase behaviour such as dissatisfaction statements or behaviours" (Mangold and Faulds, 2009).

In consumers' buying decision process, there are influences and motivation from the family members, colleagues, peers and neighbours, media personalities, traditional and digital media (promotions and advertisement) as well as the internet (Hayan and Samaan (2015). Villarroel et al. (2019) did extensive text mining from social media and analysed those online data. *They unearthed* that online text message (in Facebook and Twitter) contains emotion and information, and the satisfied customers share their experience and recommend electronics products to their known persons (Uddin, 2013). Particularity, shoppers undertake various activities before they make their final purchase decision. This effort may include seeking content from different retailers and

asking for social validation of their decision from both their online and offline social networks, which is often out of sight of the actual retailer or brand (Hall et al., 2017; Nunan and Di Domenico, 2019). The empirical evidence indicated that rapid and continued *growth in shopper's marketing* requires precise communication strategies to drive performance (Hall et al., 2017). Through the use of smartphones and other devices, people have more access to information than ever before. Consumers <u>*can get*</u> detailed knowledge about products instantly nowadays. The concern of the current study, therefore, is to demonstrate-the extent the users and customers of electronics home appliances trust and apply the information in their product selection, buying decision and recommending others. Therefore, the usage of social media comes handy for developing moderating hypotheses:

H8a. Social media usage moderates the relationship between product quality and customer' satisfaction, such as the relationship is stronger when the usage of social media is high than low.

H8b. Social media usage moderates the relationship between quality of service and customer' satisfaction, such as the relationship is stronger when the usage of social media is *high than low.*

H8c. Social media usage moderates the relationship between customer perceived value and customer' satisfaction, such as the relationship is stronger when the usage of social media is *high than low*.

2.7. Theoretical assessment

The study underpinned two theories to support the conceptual framework and met the assumptions of *those* with the objective of the study.

2.7.1. Expectation disconfirmation theory (EDT)

Expectation Disconfirmation Theory, introduced by Oliver (1977) and developed in (1980), is a cognitive theory or assumption that entails the post-purchase or post-adoption satisfaction. It is a function of expectations, perceived performance, and disconfirmation of beliefs. Satisfaction is conceptualized in several ways in the literature to date (Hair et al., 2010), and confirmation–disconfirmation approach (Veloutsou, 2015). Skogland and Siguaw (2004) prescribe three types of satisfaction, such as natural feeling, satisfaction (confirmation) and dissatisfaction (disconfirmation). The natural feeling exists if customers receive actual performance similar to the standard they expect. If actual performance is better than the natural feeling (standard), it confirms satisfaction. On the other hand, if actual performance fails to meet natural feeling, unfortunately it *leads* dissatisfaction.

According to this theory, a customer assesses his/her satisfaction levels by comparing *their* expectation with the experience received from the product quality, quality of service *and* their post evaluative behaviour and customer satisfaction. *Past studies* indicate the different *effects* of performance, expectations and disconfirmation (Yi and Nataraajan, 2018). being developed and tested in western countries, satisfaction theories are gradually extending to developing counties in a different context,. An Asian country well-known as Bangladesh with a large population, increased market size, and a different culture, is a choice of this study to utilize this theory. In a different context, it is required to test the application of customer satisfaction theories (Yi and Nataraajan, 2018). According to the expectancy disconfirmation theory, as the scholars opine, customers expect a benefit or utility from the product that before buying any product, customers expect a benefit or utility from the product. They use or consume the products, measure the prior expectation from product and the performance and at the end compare the expectation with the actual performance they receive. *This comparison* confirm satisfaction or dissatisfaction. In case of buying and using electronics home appliances, the customers compare their expectation before *buying with* actual benefits they receive during and the post usage.
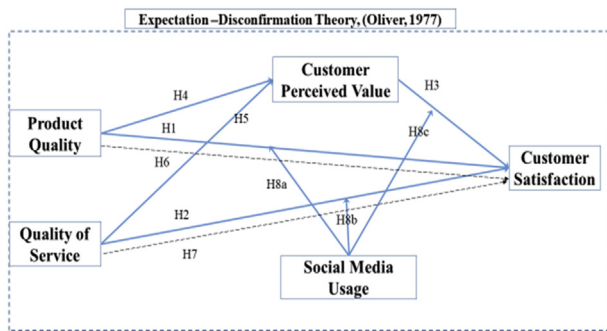
Figure 1. Conceptual framework.

Based on the literature and insights of the EDT theory, the study developed the following framework (see Figure 1).

3. Methodology

The study was based on household members (both male and female) in Dhaka, the capital city of Bangladesh. The quantitative method was adopted in this study, where a total of 300 respondents participated based on the judgmental sampling technique. A *judgmental* sampling, also known as purposive sampling, refers to the sampling method that chooses the units to be judged as the most representative of the population (Saunders et al., 2016). The researcher *imposes* a subjective experience and condition (criteria) to select samples from the intended population (Saunders et al., 2016). The quality of samples selected by using this approach depends on the accuracy of subjective interpretations which constitutes a typical sample (Valliant and Dever, 2018). We employed this technique following *the goal* of this research is to achieve theory generalization, as the complete sampling frame is not available in the given context (Memon et al., 2017; Hulland et al., 2018). The questionnaire was shared in Facebook messenger group, WhatsApp group, the LinkedIn group with a request to fill *those* out. Some questionnaire was also distributed through known email addresses. The reason for using electronic surveys (i) to minimize effort and cost (ii) to approach the largest respondents compared to the self-administered survey because in the technological era, all individuals are attached to mobile phone or computer device. Thus, that supported the researchers to approach the targeted respondents of the current study. Prior to that, a standardized and structured questionnaire was developed from the literature. The data collection period was between March to June 2019. The questionnaire with cover letter stated the purpose of the survey assuring the confidentiality and sought the consent of respondents. In addtion, researchers conducted studies involving human participants per institutional committee's ethical standards (Putra Business School Research Ethical Committee headed by Prof. Dr. Zulkornain Yusop, Reference Number: PBS/PhD/PBS18123252 dated March 15, 2019) and the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

3.1. Variables measurement

All the instruments were taken from a reliable source. Before the main data collection phase, the questionnaire was checked by academic experts to ensure content validity. Therefore, the variables were measured by self-report on multi-item scales derived from previous studies. All the measures were assessed by seven-point Likert-type as '1' representing 'strongly disagree' and '7' representing 'strongly agree'. All the items have been presented in Table 3. *To measure* product quality (PQ), four indicators were adapted from Parasuraman and Grewal (2000). We measured quality of service (SQ) with 4-items adapted from (Rigopoulou et al., 2008). Four items were taken from

the prior studies to measure customer perceived value (CPV) (Aaker, 1996; Parasuraman et al., 1985; Schechter, 1984; Sekaran and Bougie, 2009; Walls, 2013). To measure social media usage 4-items were slightly adapted from the earlier studies (Brito, 2011; Freidman, 2011; Mangold and Faulds, 2009). Finally, we measured customer satisfaction (CS) with five items taken from previous researches (Faullant et al., 2008; Parasuraman et al., 1985; Schechter, 1984; Sekaran and Bougie, 2009; Walls, 2013; Zeithaml, 1988).

4. Data analysis and results

Covariance-based structural equation modelling (CB-SEM) was employed to test the conceptual model of this study. CB-SEM carries some advantages. It is a parameter estimation where maximum likelihood (ML) method was used (Hair et al., 2017b). The data were analyzed with CB-SEM technique and using AMOS software (v.24). Two analytical steps were considered, such as the measurement model and the structural model. Measurement model encompasses reliability, validity and overall model fitness of the constructs and the structural model deals with hypotheses testing.

4.1. Demographic information

Table 1 presents the demographic information. Among surveyed 300 respondents in this study, 144 (48%) were male, and 156 (52%) were female, 198 (66%) respondents belonged to 31–40 years. A total of 273 (91%) was married, and 24 (8%) unmarried. Respondents were from diverse occupations such as students (21; 7%), jobseekers (33; 11%), self-employed (18; 6%), government employees (72; 24%), private service (90; 30%) and homemakers (66; 22%).

4.2. Exploratory and preliminary data analysis

Exploratory data analysis (EDA) were processed with the aid of the SPSS software. EDA includes missing data, data outliers, data normality, mean, median, standard deviation, correlation, linearity, multicollinearity, and homoscedasticity for determination of reliability, validity, measurement and structural models. For path coefficient analysis, covariance-based structural equation modeling (CB-SEM) was utilized. Abdollahi and Talib (2015); Kline (2010) stated some advantages while using SEM, especially CB-SEM. Hair et al. (2017a) supported the adoption of the maximum likelihood method for parameter estimation. In the measurement model, model fitness was checked, and in the structural model, the proposed hypotheses were tested. SPSS output showed no missing data in the dataset. It was possible for the authors' vigilance and persuasion to respondents. Extreme and unexpected data in the dataset were checked through univariate and multivariate outlier analysis (Kline, 2015). Cook's distance and Leverage values for outliers showed that three cases contained absolute values and accordingly were deleted. Data normality is one of the very vital issues in multiple regression (Sun et al., 2015), especially in SEM (Hair et al., 2016). Traditionally, the skewness and kurtosis statistics were also checked, and the Skewness-Kurtosis values were within acceptable range ±1.96 (Byrne, 2013; Hair et al., 2017a). Besides, the Shapiro-Wilks test showed that data distribution was normal.

Multicollinearity is a threat to multiple regression, including SEM (Hair et al., 2016). The correlation coefficient among the independent variables was not highly correlated. The result from coefficient collinearity diagnosis showed that the variance inflation factor (VIF) was below 1.70 (highest is 1.63 for customer perceived value). Therefore, data were derived from the normal distribution, and there was no evidence of multicollinearity. The scattered residual plots showed that the residuals were scattered randomly around the zero lines and had no triangular-shaped pattern. It also proved that there was no sufficient evidence heteroscedasticity of the error terms (Hair et al., 2010).

Table 1. Demographic information.

Characteristics		No	%	Characteristics		No.	%
Gender	Male	144	48%	Occupation	Students	21	7%
	Female	156	52%		Job seekers	33	11%
Age Category	Less than 26	12	4%		Self-employed	18	6%
	26–30	21	7%		Govt. Service	72	24%
	31–35	87	29%		Private Service	90	30%
	36–40	111	37%		Homemakers	66	22%
	41–45	42	14%	Social Media Usage (Multiple response)	Facebook	90	97%
	46–50	15	5%		FB Messenger	230	77%
	More than 50	12	4%		YouTube	156	52%
Marital Status	Married	273	91%		WhatsApp	68	23%
	Unmarried	24	8%		Twitter	24	8%
	Single (widowed, divorced, separated)	3	1%		LinkedIn	45	15%
					Imo	87	29%
					Viber	50	17%

4.3. Common method variance or common method bias test

Common method bias exists if principal constructs are significantly and highly correlated ($r > 0.90$) (Bagozzi et al., 1991). The correlation matrix reveals that variables are not highly correlated. Therefore, there is no initial evidence of possible CMV in this current research. Nitzl (2016) asserted that the overall correlation between items might be inflated and *shows* a significant relationship between constructs while at the same time *reduces* the discriminant validity between constructs. The correlation among all the constructs was found less than 0.90.

The present study also applied Harman's single-factor test (Podsakoff and Organ, 1986) to check for CMV. This test is conducted using principal component analysis (PCA) as suggested by (Tehseen et al., 2017). The unrotated principal axis factoring analysis reveals that a single factor explains 37.258% variance (Table 2), which is less than 50% (Al Halbusi et al., 2020; Kumar, 2012; Uzir et al., 2019, 2020). Hence, this suggests that common method bias in this study is non-existent and not a major concern and unlikely to inflate relationships between variables.

4.4. Measures of reliability, validity and measurement model

Measurement model has some properties such as reliability and validity for measuring each construct to be measured through SEM-AMOS. With individual CFA and model fitness indices of the measurement model, the strength of the relationship path was checked through the structural model. Table 3 showed the measurement elements. For item reliability, the results reveal no serious problems as most of the items exceed the recommended 0.707 level (Hair et al., 2017b). To evaluate the constructs' internal consistency, we used composite reliability; it ranged from 0.889 to 0.963, higher than the cut-offs value 0.70 (Hair et al., 2017b). In support of convergent validity, the average variance extracted (AVE) for the constructs ranged from 0.668 to 0.902, above the threshold 0.50 (Hair et al., 2017b). In the case of discriminant validity, cross-loading, the square-root of AVE (Fornell and Larcker ratio), ASV

and MSV test were done. Diagonal value is higher than the corresponding value of the respective row and column values (values are bold shown in Table 4). It indicates that the construct's correlation is higher than the correlation with other constructs. Similarly, maximum shared variance (MSV) is lower than AVE, but higher than average shared variance (ASV) (Table 4). Thus, the measurement variables are unique and discriminant from each other.

4.5. Model fit assessment

Table 5 indicated that CMN/DF was 1.672, which is lower than the threshold value (5.00). GFI (0.923) is an acceptable level, and CFI (0.981) is very good.

The indicators of the badness of the model were acceptable level as RMR and RMSEA were 0.023 (<0.05) and 0.047 (<0.08) respectively which were less than the threshold (Hair et al., 2017b). The overall results demonstrated the measurement model fitted good and was eligible for the structural model (Figure 2).

4.6. Path coefficient and structural model

The structural model (path coefficient) describes the association and effect of independent variables on the dependent variable. SEM method, especially the maximum likelihood method, can test complex models rigorously and find integrating multiple associations among multi-item variables, and moderating and mediating effects (Berraies et al., 2017). The β of path coefficient shows the direct impact of latent predictor variable on predicted variables (Figure 3).

Table 6 shows that product quality (β = 0.190, CR = 3.247, p < 0.001) has a positive and significant effect on customer satisfaction which supports the first Hypothesis. Similarly, quality of service (β = 0.214, CR = 3.597, p < 0.001) has a significant and positive relationship on customer satisfaction (Hypothesis 2). Customer perceived value (β = 0.224, CR = 3.704, p < 0.001) also has a positive relationship with

Table 2. Common method variance test via single factor.

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	25.335	37.258	37.258	24.724	36.359	36.359
2	8.115	11.933	49.191			
3	4.610	6.779	55.970			
Extraction Method: Principal Axis Factoring.						

Table 3. Measurement model, item loadings, construct reliability and convergent validity.

Constructs	Coding	Items Description	Loading	CA	CR	AVE
Product Quality	PQ1	The brand has an excellent functional quality.	0.954		0.963	0.866
	PQ2	The brand offers very durable products.	0.920			
	PQ3	Products of the brand are reliable.	0.922	0.963		
	PQ4	The brand offers products with excellent features.	0.926			
Quality of Service	SQ1	Reliability in delivery times.	0.937		0.973	0.902
	SQ2	Quality of the product packaging when delivered.	0.947	0.973		
	SQ3	Kindness and friendliness of the personnel.	0.950			
	SQ4	Flawless of the installation.	0.964			
Customer Perceived value	CPV1	I think the price of the product is equivalent to its quality.	0.925		0.913	0.728
	CPV2	The brand provides high-quality customer services.	0.906	0.904		
	CPV3	I feel relaxed in buying this product.	0.909			
	CPV4	I feel trust, safe and confident in buying the product from this company.	0.640			
Social Media Usage	SM1	Social media have made, more convenient access to brand information.	0.767		0.896	0.685
	SM2	Social media help us compare various brands.	0.838	0.893		
	SM3	I think I am getting benefits from social media in choosing a brand.	0.801			
	SM4	I think the usage of social media has any positive effects on selecting a brand.	0.898			
Customer satisfaction	CS1	The brand meets my expectations.	0.830		0.889	0.668
	CS2	I am satisfied with my decision to buy this brand.	0.753			
	CS3	The brand is the only one that I buy and use.	0.838	0.887		
	CS4	I would recommend the product or service to others	0.846			
	CS5	I am satisfying delighted with this brand.	Dropped			

Notes: CR = Composite Reliability, AVE = Average Variance Extracted.

Table 4. Discriminant validity.

	AVE	MSV	ASV	1	2	3	4	5
1. CustSat	0.668	0.228	0.105	**0.818**				
2. ProdQual	0.866	0.047	0.016	0.216	**0.931**			
3. ServQual	0.902	0.073	0.034	0.270	0.087	**0.950**		
4. CustPerVal	0.728	0.072	0.041	0.269	0.032	0.180	**0.853**	
5. SocMed	0.685	0.228	0.080	0.477	0.090	0.158	0.240	**0.827**

Table 5. Overall model fit.

Construct	CMIN/DF	GFI	CFI	NFI	RMR	RMSEA	PClose
Indicator Value	1.672	0.923	0.981	0.954	0.023	0.047	0.656

customer satisfaction (Hypothesis 3). The relationship between product quality and customer perceived value was not significant (β = 0.017, CR = 0.277, p < 0.782) which implies that the fourth hypothesis has been supported. On the other hand, the quality of service has a positive relationship with customer perceived value (β = 0.179, CR = 2.99, p < 0.001) (Hypothesis 5).

4.7. Mediating role of customers' perceived value

By using the bootstrapping method, it was possible to ascertain the mediating effect (indirect) of the customers' perceived value in the relationship between independent variables (product quality and quality of service) and dependent variable (customer satisfaction). Preacher and Hayes (2008) initially suggested this bootstrapping technique as a tool for investigating the indirect effects of different variables. It is also relevant in obtaining accurate results while calculating the confidence intervals (CIs) of indirect relationships, as suggested by Baron and Kenny (1986). In this study, 5000 subsample bootstrapping in bias-corrected confidence interval at 95% provide the following results (Table 7) as bootstrapping is a powerful tool to test

indirect effect (Hayes, 2009; Williams and MacKinnon, 2008). From Table 7, it was found that product quality (0.217, 95 per cent CI) has a significant direct effect on customer satisfaction but has an
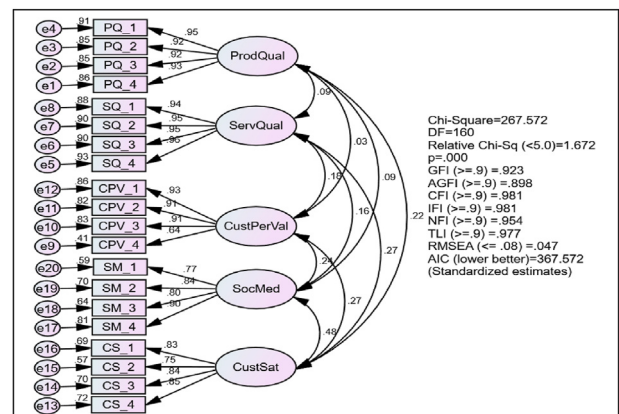
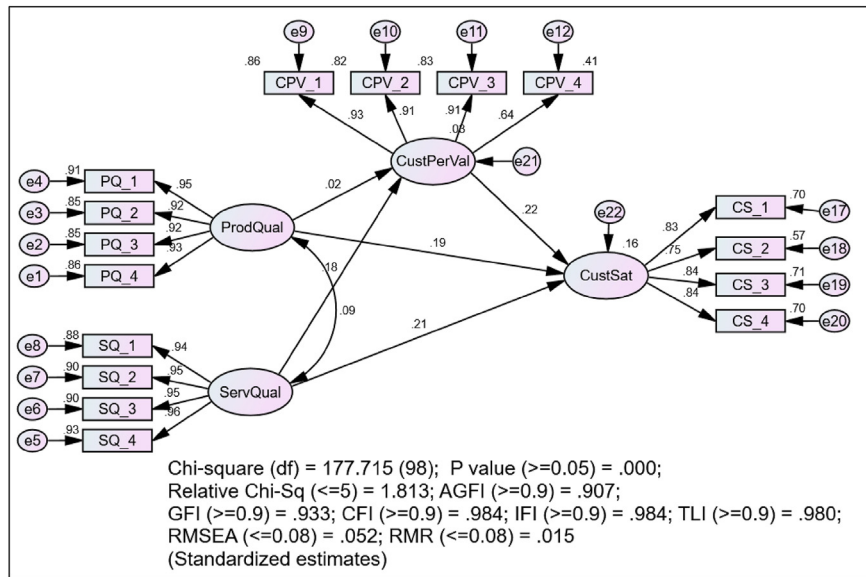

Figure 2. Measurement model.

Figure 3. Structural model.

Table 6. Result of hypotheses testing.

Hypotheses & Path	B	Beta (β)	Standard Error	Critical Ratio	P-value	Result
H1: P Q → CS	0.155	0.190	0.048	3.247	0.001	Supported
H2: SQ → CS	0.090	0.214	0.025	3.597	***	Supported
H3: CPV → CS	0.122	0.224	0.033	3.704	***	Supported
H4: PQ → CPV	0.025	0.017	0.089	0.277	0.782	Rejected
H5: SQ → CPV	0.137	0.179	0.046	2.99	0.003	Supported

B = unstandardized regression weights, Beta (β) = standardized regression weights and ***p < 0.001.

Table 7. Mediating effect (indirect effect) of customer perceived value.

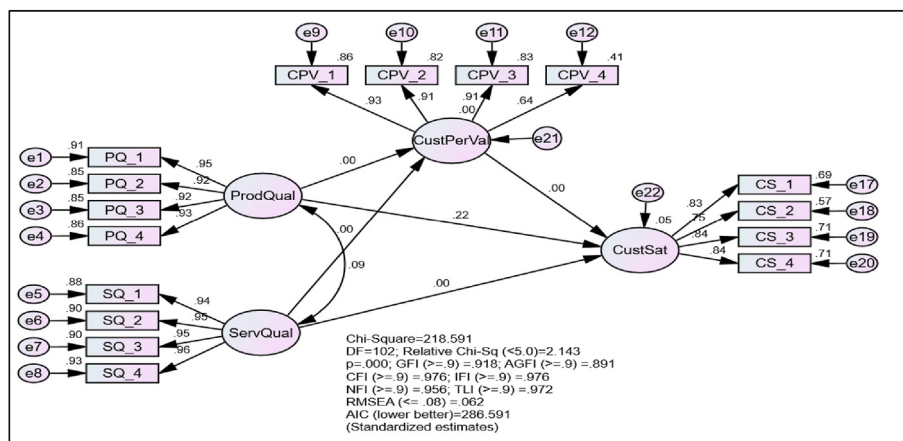| Hypotheses		Direct	Mediation	Indirect	Mediation type
PQ →	CS	0.217***	0.190***	0.004(NS) Lower band: -0.024 Upper band: 0.054	No mediation
SQ →	CS	0.271***	0.214***	0.040*** Lower band: 0.012 Upper band: 0.095	Partial mediation

***P < .0.001.

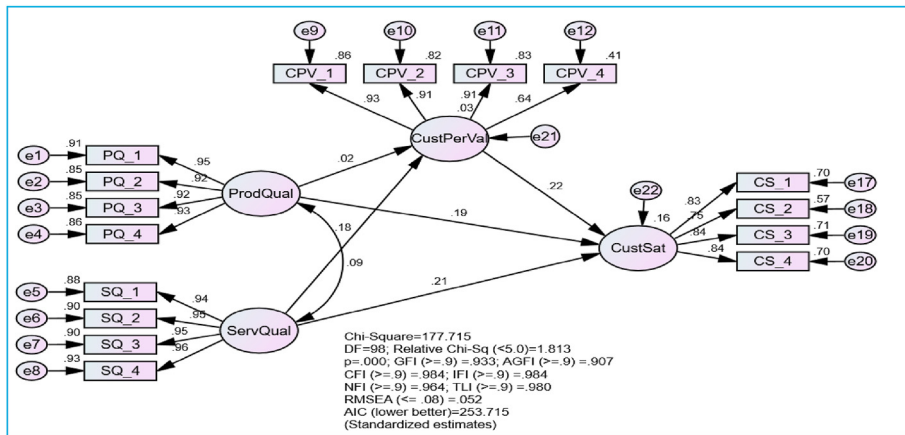**Figure 4.** Direct model: PQ-CPV-CS.

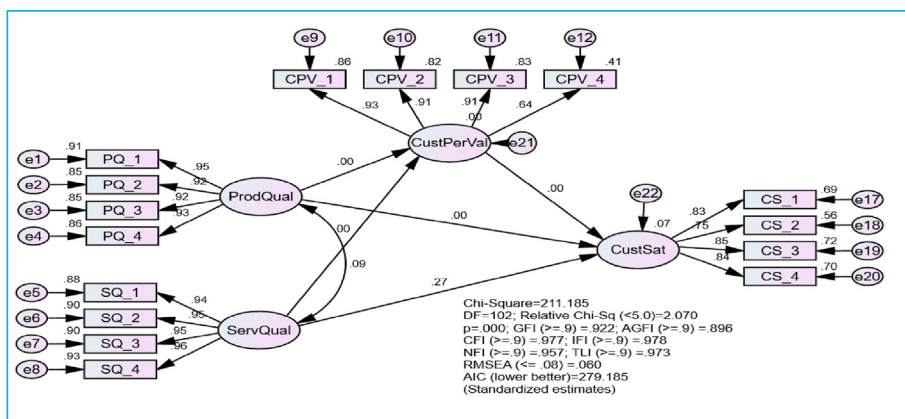**Figure 5.** Mediating model: PQ-CPV-CS.
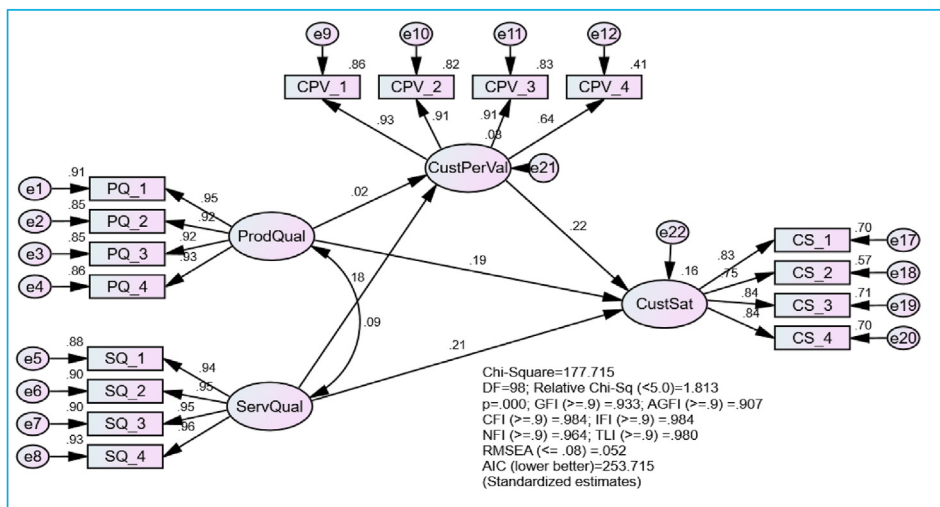

Figure 6. Direct model: SQ-CPV-CS.

Figure 7. Mediating model: SQ-CPV-CS.

insignificant indirect impact on customer satisfaction (0.004). Hence, customer perceived value has no mediation effect on the relationship between product quality and customer satisfaction (Hypothesis 6).

Furthermore, the quality of service has both a significant direct effect (0.271) and indirect effect 0.040) on customer satisfaction. Hence, customer perceived value has a partial mediating role in the relationship between quality of service and customer satisfaction (Hypothesis 7).

Figures 4, 5, 6, and 7 showed the mediation of customer perceived value.

4.8. Moderating effect of social media usage

Social media usage has been utilized as the moderator in this study and was categorized into three levels: low usage, mid usage, and high

usage. These levels are the extent to which a customer has faith on the information available in social media. Before testing the moderation effect, the study checked the measurement invariance of the composite model.

4.8.1. Measurement invariance of composite model (MI-COM)

Eberl (2010), while describing measurement invariance states that "….. the loading and weights of the constructs' measurement model must not differ significantly within the model" (p. 504). Hair et al. (2017) signified measurement invariance composite model (MI-COM) and mentioned that "… variations in the structural model relationships between latent variables could stem from the different meaning the groups' respondents attribute to the phenomena being measured, rather than the true differences in the structural relationships". In this study, the usage of social media was grouped into low, medium and high. According to Henseler et al. (2016), the first step of MI-COM is configuration invariance. Configuration invariance is achieved if the factor loadings of items are invariance in the measurement model. The study found that regression weights of items with constructs were significant; CFI and TLI were higher than 0.90, and RMSEA was less than 0.08. In the second step-parameter invariance, unconstraint model, measurement weights, structural covariance and measurement residuals were checked. Unconstraint model's Chi-square was insignificant. *Model one* showed that invariance between groups (CFI, TLI) was higher than 0.90, and RMSEA was 0.70. Model 2 (structural covariance and correlation) and model 3 (measurement residuals) showed that invariance was significant. Considering the factor invariance, parameter invariance, and their significance, the study found that this measurement model was invariant. Therefore, moderating effect could be checked.

4.8.2. The categorical moderating effect of social media usage

This section tests the moderating effect of social media in the three hypotheses 6a, 6b, and 6c. earlier mentioned. Social media usage construct was categorized into three multi-group- low, medium, and high. The result showed (Table 8) that social media moderate the relationship as unconstrained model (Chi-Square: 2.627, CFI: 0.919, IFI: 0.920, RMSEA: 0.074) and is better than measurement residuals (Chi-Square: 3.372, CFI: 0.848, IFI: 0.848, RMSEA: 0.089) as well as statistically significant (p = 0.000) (Hair et al., 2017b).

For the moderator (multi-group) variables, social media has been categorized into three groups based on the mean. The category calculation was done by deducting lower scale point (1) from the upper scale point (5), and the difference has been divided into 3 (e.g. three categories). Here interval is 1.33 (5-1 = 4, 4/3 = 1.33). Classification for low level is 1 + 1.33 = 2.33 and below, mid-level = 1.33 + 2.33 = 3.66 and below; and high level above 3.66. The path was moderated by the level of social media where β of three categories (low, mid and high level) gives different significance or all paths are either negatively significant or positively significant (Table 9).

Social media does not affect those who use these media less. In regard to medium usage of social media, users are affected much. *Medium users get* various information from the reviews, recommendations, and feedbacks shared in these media. Low-level users and high-level users cognitively ignore comments.

Social media usage construct was categorised into three *multi-groups-* low, medium, and high (Table 10). The findings showed that social media moderate the relationship as unconstrained model (Chi-Square: 2.627, CFI: 0.919, IFI: 0.920, RMSEA: 0.074) is better than measurement residuals (Chi-Square: 3.372, CFI: 0.848, IFI: 0.848, RMSEA: 0.089) and statistically significant (p = 0.000) (Hair et al., 2010).

From Table 10, the effect of product quality on customer satisfaction is significant at a low level ((β = 0.395, p < 0.001) but insignificant at both mid-level ((β = -0.054, p > 0.05) and high level (β = 0.037, p >

0.05). The effect of quality of service on customer satisfaction was significant at both low level (β = 0.270, p < 0.001) and high level (β = 0.238, p < 0.001) but insignificant at mid-level (β = 0.131, p > 0.05). The effect of customer perceived value on customer satisfaction was significant at both low level (β = 0.262, p < 0.001) and high level (β = -0.081, p < 0.001) but insignificant at mid-level (β = 0.118, p > 0.05).

4.9. Mediated (perceived value) moderating (social media usage) effect on PQ → CS and SQ → CS

According to the findings demonstrated in Table 11, perceived value does not mediate the relationship between product quality and customer satisfaction at a different level of using social media. Similarly, the perceived value does not mediate the relationship quality of service and customer satisfaction (Table 12).

5. Discussions

The main objective of this study was to investigate the relationships among product quality, quality of service and customer satisfaction, and how customers' perceived value mediates and social media usage moderates these relationships. The results *showed* that product quality has a positive and significant relationship with customer satisfaction (Hypothesis 1). This finding is consistent with a similar study conducted by Uddin (2013) on electronics household markets in Bangladesh. Conversely, the results are also identical to the outcome of various researches over the period. The corresponding results were found by Hill and Alexander (2016), Ryu and Han (2010), Ryu and Jang (2008) as well as Santouridis and Trivellas (2010). Later on, Beneke et al. (2013); Jakpar et al. (2012); Kafetzopoulos et al. (2015); Vera (2015); Verhoef and Lemon (2013); Wang et al. (2012) and Prakash et al. (2017) also confirmed equivalent findings that product quality is positively related to customer satisfaction.

Product quality is the functionality and conformance of the product that serve the purchasers and users satisfactorily. People purchase electronics home appliances of their favourite brand for their convenience. In Bangladesh, customers focus on product durability, usability, design, colour shape and physical outlook. Products should be *convenience, and fit and easy to use.* Customers first expect the electronics appliances to be fit for usage (Russell and Taylor, 2006) and meet their requirements (Crosby and Stephens, 1987). If the home appliances meet the daily requirement of the customers and make the life easy and comfortable, customers will be delighted and satisfied to that brand (Gerdt et al., 2019; Zhang et al., 2019). Gök et al. (2019) in their recent research that quality of physical products satisfies the users. The electronics home appliances TV, fridge, washing machine, fan, lights, oven, air conditioners, etc. have some *risks, for example,* electric shock, blast, short-circuit, etc.; sometimes these risks harm users. The safety of electronics home appliance is a considerable issue to customers. Herrington and Weaven (2009), as well as Feigenbaum (1991) argued on product quality control and production quality for product safety, which ensure customer satisfaction. Therefore, product quality, such as functionality has a significant influence on customer satisfaction. This finding *has been* supported by the expectancy-disconfirmation theory (EDT) by comparing *the customer* perception of product quality and their *expectations* (Oliver, 1980).

The study has also found the quality of service has a positive and significant relationship with customer satisfaction (Hypothesis 2). The *findings* indicated that installation service, demonstration of using electronic items, pre-cautions regarding possible dangers, after-sale service, warranty, repairing service, and home service are very vital to customers. The findings of the study suggested that quality of service, like other intangible pure services, are the influential factor in customer satisfaction. Chen (2008) and Hu et al. (2009) spoke about similar outcomes in

Table 8. Moderation effect of social media usage.

Hypothesis	Beta and p-Value			
	Combined Model	Low	Medium	High
PQ→CS	0.190***	0.395***	-0.054	0.037
SQ→CS	0.215***	0.270***	0.131	0.238***
CPV→CS	0.223***	0.262***	0.118	-0.081***

Note: *** indicates significant.

Table 9. Moderating effect of social media usage.

Hypothesis	Beta and p-Value			
	Combined Model	Low	Medium	High
PQ→CS	0.190***	0.395***	-0.054	0.037
SQ→CS	0.215***	0.270***	0.131	0.238***
CPV→CS	0.223***	0.262***	0.118	-0.081***

*** Significant (p < 0.001).

their studies. The findings of the current study also match with the study findings by Ali and Raza (2015); Beigi et al. (2016); Chinomona et al. (2013); Kondasani and Panda (2015). Mostly, this significant finding corresponds to the result of Uddin (2013) in electronics home appliances in Bangladesh.

Bangladeshi customers expect the sales personnel to demonstrate how to use, to guide regarding the utility and installation process of the electronic items at home. Moreover, customers expect to receive the after-sale service, repairing service and replacement in case of malfunctioning. As technical supports, electronic equipment or products have some guidelines to be followed for security purpose or these items to be assembled, or fixed at home. A quick, smooth and passionate support and service in setting, installation and repairing matter a lot. If these services are useful, customers are likely to be highly satisfied. Therefore, quality (timely, quick and practical) of service ensures customer satisfaction. According to expectancy disconfirmation theory, customer satisfaction comes from service quality. If the service of sale personnel meets the requirements of customers, it will ultimately ensure satisfaction leading to next purchase.

In the third Hypothesis, customers' perceived value was found to have a positive and significant effect on customer satisfaction. Collaboratively, the study results of Chen (2008); Frank and Enkawa (2007); Hu et al. (2009); Uddin and Akhter (2012) and Uddin (2013) affirmed that customers' perceived value influences customer satisfaction significantly. Several recent findings also reflect that customer perceived value is essential for customer satisfaction (Chen and Lin, 2015; Ramseook-Munhurrun et al., 2015; Unyathanakorn and Rompho, 2014). Customer satisfaction depends, most unlikely on product quality and quality of service, and the perception of a customer. If electronics home appliances are purposeful for the customers, they will be happy and delighted. Customers compare the expectation before the usage of an electronic item such as television, fridge, washing machine, etc. to their actual experience during and post usage of those items. Practically, it means that customers *assume* that their spending is worthy and also they win in this purchase. Similar to EDT theory, if purchasing and using of electronic items ensure comfort like the customer that this purchase or usage offer

Table 10. Usage of social media.

Usage of Social Media	Frequency	Percentage
Low	92	30.70
Medium	96	32.00
High	114	37.30

Table 11. Mediated (Perceived Value) moderated (Social Media Usage) effect on PQ > CS.

Level	Relationship	Parameter	Comments
Low	Direct	0.121***	No Mediation
	Mediation	0.123***	
	Indirect	0.004 (NS) Lower Band: -0.006 Upper Band: 0.039	
Mid	Direct	0.126***	No Mediation
	Mediation	0.118***	
	Indirect	0.004 (NS) Lower Band: -0.007 Upper Band: 0.034	
High	Direct	0.166***	No Mediation
	Mediation	0.149***	
	Indirect	0.005 (NS) Lower Band: -0.009 Upper Band: 0.036	

them more benefits than expenditure, the customers become happy The customers assess how much benefits they are getting using this electronic over paying such amount.

The fourth Hypothesis was regarding a significant relationship between product quality and perceived value, and it was insignificant statistically (hypothesis 4). This finding is rare that product quality does not affect value perception. It is due to the perception of Bangladeshi customers like electronics products will meet their needs as usual. Product quality, its functionality, durability and usefulness are common characteristics. They pay money and hope that product will function properly. Therefore, their value perception is not affected. The fifth hypothesis, which was the relationship between service quality and perceived value, was significant. This finding is consistent with the result of Lai (2015); Thielemann et al. (2018). *Customers in Bangladesh* prioritize services such as installation, delivery, after-sales service, etc. to form a value about those services and products. Higher services generate a psychological attachment in the customers that is the spending is worthy. This positive feeling regarding the electronics home appliances service creates a strong perception about service.

The study found that customer perceived value does not mediate the relationship between product quality and customer satisfaction (Hypothesis 6). In customers' beliefs, electronics products are liberally similar in quality, functionality, and features. Meeting the customers' needs independently are sufficient as far as product and its functional quality are concerned. If the utility and household electronics appliances are safe, convenient to use, durable, and are of fashionable features (like

Table 12. Mediated (Perceived Value) moderated (Social Media) effect on SQ > CS.

Level	Relationship	Parameter	Comments
Low	Direct	0.181***	No Mediation
	Mediation	0.175***	
	Indirect	0.016 (NS) Lower Band: -0.001 Upper Band: 0.062	
Mid	Direct	0.204***	No Mediation
	Mediation	0.177***	
	Indirect	0.004 (NS) Lower Band: -0.001 Upper Band: 0.064	
High	Direct	0.2466***	No Mediation
	Mediation	0.202***	
	Indirect	0.019 (NS) Lower Band: 0.000 Upper Band: 0.070	

in colour, shape, etc.), the product ensures the customer satisfaction. Bangladeshi customers first look into the product, its functionality and durability satisfaction.

On the other hand, it mediates the relationship between quality of service and customer satisfaction (Hypothesis 7). Service quality is a subjective judgement, and perceived value is also a psychological state of customers. If customers perceive that service is enough with proper delivery and installation of the electronic items, as well as services are worthy compared to their spending, these will ultimately ensure customer satisfaction and customer perceived value will enhance the relationship. Customers consider how smooth service is provided in case of installation, repairing guidelines, and after-sale service. Another issue is that many companies do not exchange sold items, or replace malfunctioned items. So, customers are very concerned while purchasing or using an electronic item. *As a result*, customer perceived value has an indirect effect on the quality of service and customer satisfaction.

The moderating role of social media usage refers to the impact, for example, how various levels of customer involvement in social media affect customer satisfaction with product quality and services. The study found the moderating effect of social media. The usage level of social media affects the relationships between independent variables and customer satisfaction (Hypotheses 8a, 8b, and 8c). In regard to product and customer relationship (Hypothesis 8a), this relationship is significant for low-level users but *insignificant* for the mid-level and high-level users. Here, low level *users believe in the information*, reviews, comments, *and recommendations* of product quality. *Low involved-customers in* Bangladesh consider that social media is a trusted source of information. On the other hand, the customers who are highly involved in social media do not consider the message information, comments, recommendations; rather, they care about the quality of products. As regard to the relationship with the quality of service (hypothesis 8b), social media usage affects the relationship. For low and high level users of social media, this relationship between service quality and customer satisfaction is significant but insignificant for mid-level users. The message information, comments, recommendations regarding service quality of electronics home appliances are viable for lower and higher level customers; the information (found in the social media is not considerable for mid level users as regard to ensuring satisfaction with service.Similarly, low and high level users consider that the news, comments and reviews posted in the social media develop the feeling such as their investment to purchase the electronic home appliances is fruitful and satisfactory. But midlevel users are ignorant. *Finally, the indirect relationships of customer perceived value between product quality and customer satisfaction and between the quality of service and customer satisfaction at various level of social media usage were insignificant.* The findings showed that these two indirect (mediating role) relationships of customer perceived value are insignificant with various level of customer involvement in social media. As a result, customers are indifferent in assuming perceived value though thy are involved in social media.

Usage of modern technology, especially social media, customer choice, preference and usage pattern of the product has been changed and shifted from traditional behaviour. Facebook, FB messenger, WhatsApp are mainly used *in Bangladesh*. Various companies have targeted these social media *for a communication* and advertisement platform. These companies are spending a significant amount of money for an advertisement *of products* and services. With one feature, i.e. sponsored advertisement (spending money for advertising their products and service) companies are targeting their audience quickly. *Therefore, accessibility has increased.* The level of social media usage has a moderating effect on customer satisfaction.

6. Conclusion and recommendations

The study attempted to examine the relationship between product quality, service quality with customer satisfaction, and how customers' perceived value mediates and social media moderates these

relationships. The purchasers and users of electronics items in Bangladesh were the target population of the study. *Findings of the study indicated* that product quality and quality of service of electronic home appliance items *ensure* the customer satisfaction. Though perceived value does not mediate the product quality-satisfaction relationship *but* mediates quality of service-satisfaction relationship *partially*. Moreover, perceived value does not mediate these relationships at various levels of social media usage. Since social media is popular in all walks of life, online survey method was used in this study. Moreover, social media is a moderating variable in this study, therefore the authors tried their best to utilize technology. The main objective was to explore the relationship of product quality, service quality, and perceived value on customer satisfaction in connection with social media. The findings of this study are very consistent with the previous findings.

Additionally, the impact of social media *has also been diagnosed*. Various levels of involvement in social media have a substantial impact on customer satisfaction.

6.1. Implications

This type of study *is first* in Bangladesh. To the best of the authors' knowledge, there is hardly any study as regard to examine customer satisfaction in electronics home appliances. The findings of the study can assist the managers and decision-makers involved in national and multinational companies focusing on customer satisfaction; the components are product quality, service quality, and customer perceived value. They may concentrate on product quality, ensuring the quality of service as well as providing more benefits in comparison to price or cost of the product.

6.1.1. Managerial implications

Customer and the brand of electronics home products require a successful relationship. This successful relationship lasts long once both parties attain their respective objectives. The study found the quality of electronics home appliances has a significant and positive relationship on *customers satisfaction*. The brand managers, the company, showroom owners, retailers, and other concerned authority may focus on developing and improving the quality. Customer assessment program, loyalty program, customer interview, and random customer selection for focus group discussion *may produce* some insights regarding product development. Based on the information collected from the customers and *users of electronics* household items, the company can offer *new products* with new features, shapes, models and colours. Household items not only meet the requirement but also indicate the status, choice, and taste of a family. Electronics products sometimes can be some causes of dangers due to blast, short-circuit, firing, etc. Therefore, product safety is also a concern of the customers. The company and brand (especially local companies and local brands) can form a customer panel and expert panel to address these developments and d*ifficulties*. According to their opinions, new products can be introduced in the market. This initiative may increase the satisfaction of customers and users of electronics home appliances.

Similarly, the quality of after-sale service has a significant impact on satisfaction. The electronics home appliance needs some services during and post-selling stages. Delivery service is essential in regard to large home appliances such as fridge, air conditioners, large TV, etc. The company can arrange instant delivery service so that *sooner* the customer purchases an item, it can be delivered. *C*ustomers usually do not want to wait after *purchasing* (paying bills). The prompt service may delight the customers.

Similarly, the installation service is also significant issue. Technicians *should* be ready to move with the product or immediately after the delivery of the product at the customer's point. Smooth technical installation services, instruction on usage may increase the image of the company, ensuring customer satisfaction. Company and showroom owners can ensure the availability of technical team for these mentioned services (expert team with carrying van).

Once their perception of this comparison between expectation and benefit is positive there is a strong possibility to be loyal to the brand. In relation to electronics home appliances, this comparison and perception exist to a large extent. Therefore, with continuous product development, the company should a strategy to judge customer perception. Management can offer assessment program for the customers, can form online customer group or community or can arrange or set compliant boxes in showrooms, display centers or provide an e-mail address to put their opinions, comments, assessments or recommendations, etc. Management can offer assessment program for the customers, can form online customer group or community, can arrange or set compliant boxes in showrooms, display centers or provide an e-mail address to put their opinions, comments, assessments or recommendations The practicing managers can select some customers and select some customers and consider their own opinions as well as their friends and family members on regular basis. Marketing managers consider the marketing research data of customer satisfaction, trust, and related information that reflect the brand's components. The practicing managers should consider these issues in their daily, monthly and yearly plan.

As social media and its usage strengthen the customer brand and customer relationship, the companies can focus on social media. They may launch company's online account (e.g., Facebook, Twitter, LinkedIn) wherein they can share company, brand and product information. They may maintain a cat's eye on social media. Any false propaganda and news should be under company consideration and necessary actions should be taken to resolve those issues. Press news, social media advertisement can be fruitful in this regard.

6.1.2. Theoretical implications

Many researchers might want to replicate the study in other countries and cultural contexts, for example, a large population in a developing country. This study findings can contribute in several ways to the current body of knowledge in the context of slow-moving consumer durables. The findings may also add contribution by supporting the assumption that is expectation disconfirmation theory (EDT). The constructs-product quality and quality of service considering the indirect effect of customer perceived and interaction effect of usage level of social media can contribute to the literature of electronics home appliances, brand loyalty and customer satisfaction. This study is possibly the first one on electronics home appliances where customer satisfaction was examined with social media usage in the Bangladeshi context. It added a knowledge-view in EDT theory in this context such way: use of second-generation statistical tools (SEM-AMOS). Investigating the usage of social in this context, especially, in physical products context is a milestone. Previously, service quality and its five or six dimensions were used; the authors of the current study used quality of service in the form of delivery service; besides installation service and other after-sale service were brought into this model. Social media usage and its moderation in mediating relationship are also a contributing aspects for the literature. The findings generalize many developing countries where the population is large as well as income and education level are not that high.

6.2. Limitations and areas for future research

The study targeted only electronics household items within household usage in Bangladesh. The authors used judgmental sampling technique to reach the respondents through social media. Many of them could not be accessed. The current study adopted only three independent variables such as product quality, quality of service and perceived value. Other researchers can focus on other constructs such as brand image, product price, advertisement, and etc.

Unlike other studies, the present study has few limitations such as a. the sample size might be large (more than 300 respondents). Only 300 customers or users may not represent an unknown population and marketing context. A large sample can be more suitable representative of the population; in this way, the study findings can be generalized in

marketing research. b. Only product quality, quality of service, customers' perceived value and social media are not sufficient to explain customer satisfaction of electronics home appliances. Some other variables such as price, brand image, customer experiences, brand knowledge, verbal recommendation, and country of origin might lead to a better understanding. Similarly, the different associations can be integrated into the research model. Judgmental sampling technique is not proper technique to select the appropriate respondents. Other sampling techniques may even be tried for better output. The intercept sampling method can be appropriate in this regard to collect data from respondents at a particular time, particular day of the week.

6.2.1. Future directions

Prospective researchers on this type of study can focus on other constructs such as price, brand image, customer experiences, brand knowledge, word of mouth, and country of origin. Further research can also be done on a specific home appliance such only tv, or fridge, or washing machine or air conditioners.

Declarations

Author contribution statement

MD U.H. Uzir: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

I. Jerin: Conceived and designed the experiments.

H. Al Halbusi: Performed the experiments; Analyzed and interpreted the data.

A.B.A. Hamid: Conceived and designed the experiments; Wrote the paper.

A.S.A. Latiff: Contributed reagents, materials, analysis tools or data; Wrote the paper.

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Data will be made available on request.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

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